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Patterns of perceptual performance following posterior cerebral artery stroke: Results from the Back-of-the-Brain (BoB) project

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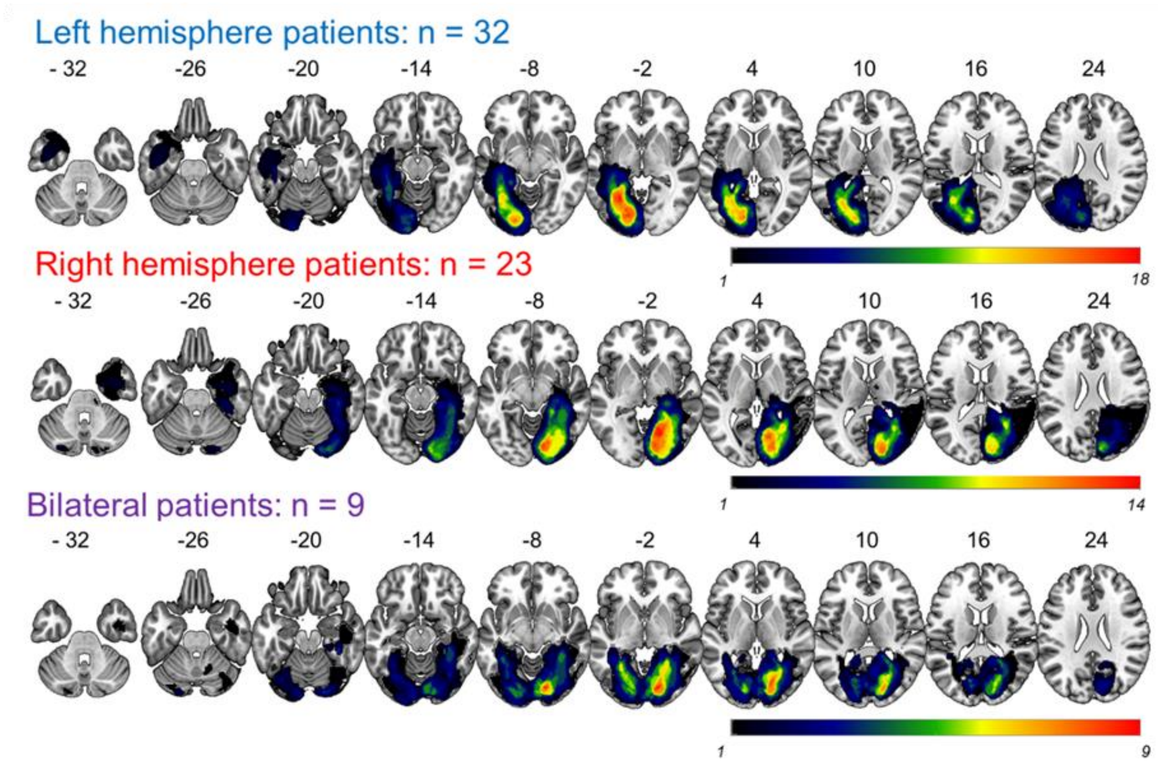
Say hello to BoB

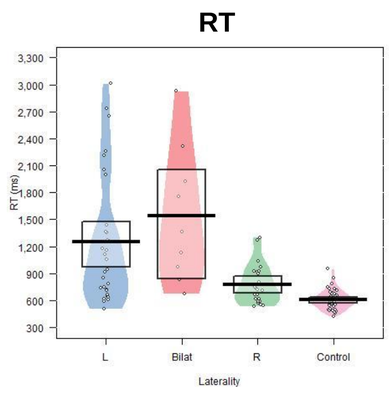
In the **Back-of-the-Brain (BoB) project**, we recruited patients based on lesion location rather than symptomatology, to assess the range and specificity of perceptual deficits following posterior cerebral artery (PCA) stroke, with particular focus on faces and words. In a case series design, we evaluate both group performance (by lesion laterality) and individual case performance on specific tests and composite scores for face, object, and word recognition.

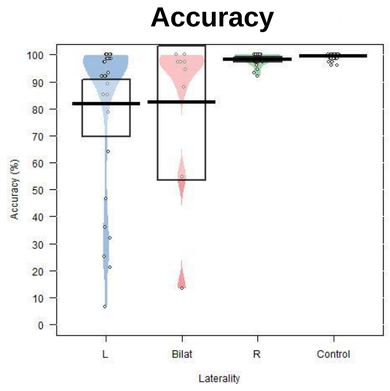
Group	Age	Education	Handedness	LesionVol cm^3	Time since stroke(months)
Left n=32	64 (12)	14 (3)	28 R, 4 L	32 (30)	42 (48)
Right n=23	60 (15)	14 (3)	23 R	35 (40)	42 (60)
Bilat n=9	57 (11)	15 (3)	8 R, 1 L	61 (38)	40 (28)
Control n=46	62 (15)	15 (2)	44 R, 2 L		

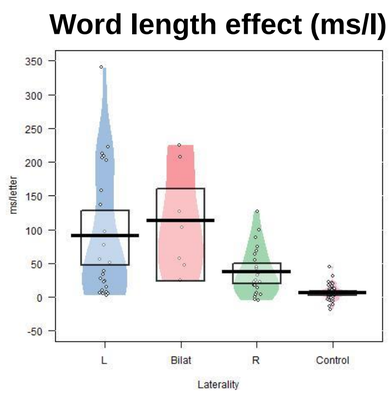


Distribution of individual scores - examples

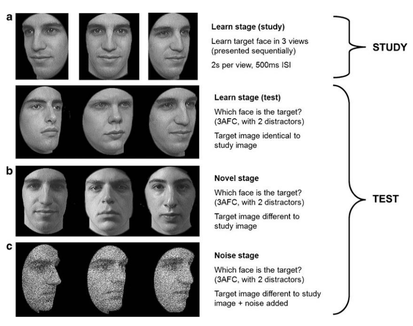
Reading out loud

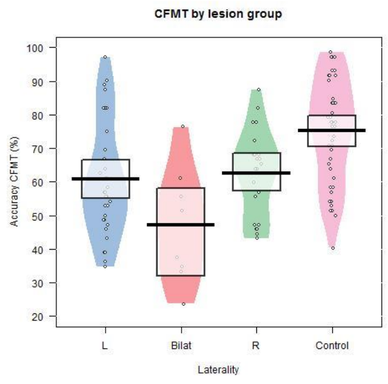






Cambridge Face Memory Test

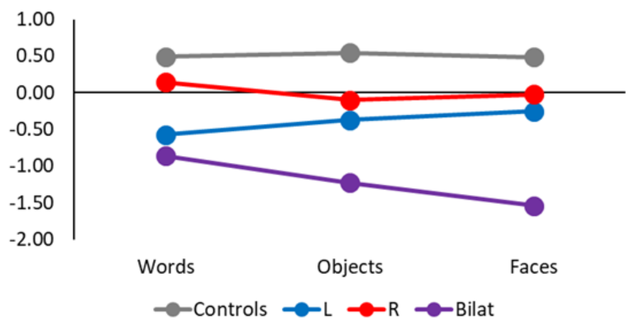


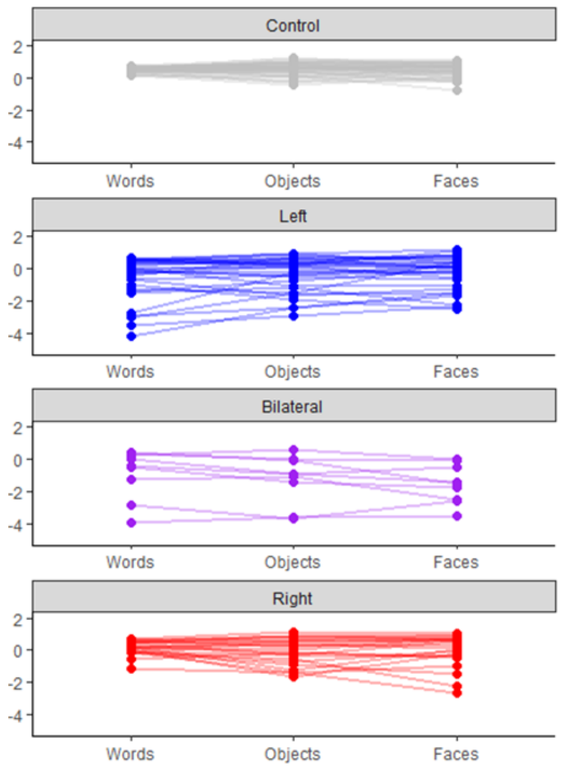


Comparable tests across domains

FACES	OBJECTS	WORDS
DelayedMatching ACC DelayedMatching RT	DelayedMatching ACC DelayedMatching RT	DelayedMatching ACC DelayedMatching RT
SurpriseRecognition ACC SurpriseRecognition RT	SurpriseRecognition ACC SurpriseRecognition RT	SurpriseRecognition ACC SurpriseRecognition RT
Face Familiarity ACC FaceFam Famous RT	Object Decision ACC ObjectDec RealObjects RT	Lexical Decision ACC LexicalDec Word RT
Face Naming Named ACC Face Naming Recog ACC	Picture Naming ACC Picture Naming RT	WordReading ACC WordReading 3L RT

Composite scores (PCA on comparable tests)





Patterns of deficits (Crawford analysis)

	L	R	Bilat	Total
No Deficits	12	8	1	21
WOF	10	6	6	22
W only	3	3	0	6
O only	0	0	0	0
F only	0	0	1?	1?
WF	2	1	0	3
WO	5	4	0	9
FO	0	1	1	2

Conclusions

1) Are there clear differences in distribution of scores on main tests face and word recognition between patients with left and right hemisphere stroke?

Yes, but mostly for reading: More left than right hemisphere patients show severe reading deficits. Face deficits are more similar across groups.

of 2) Are there patients with selective (significantly dissociated) deficits?

Yes, but only in reading. Contrary to expectation, this may be observed following both left and right unilateral stroke. This may reflect different types of alexia or premorbid reading skills.

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